Over-the-scope-clip two-side closure of a coloduodenal fistula caused by a dislocated prosthesis of the pancreatic duct

Fig. 1 **a** Coloduodenal fistula (arrow) in a patient with a dislocated pancreatic duct prosthesis, previously placed because of a disconnected duct syndrome due to necrotizing acute pancreatitis. **b** Fistula (arrow) after two-side closure with an over-the-scope clip.

The over-the-scope clip (OTSC; Ovesco Endoscopy, Tübingen, Germany) represents a technological advance in endoscopic devices and has made possible the treatment of emergency bleeding and the endoscopic closure of perforations, leaks, and fistulas of the upper and lower gastrointestinal tract [1,2]. However, available studies indicate that there are three factors with a statistically significant relationship to long-term success with this device: type of defect, primary versus rescue therapy, and chronicity of the defect. Furthermore, OTSC placement for fistula closure has had significantly lower

long-term clinical success rates than placement for perforations and leaks [3]. To our knowledge, this is the first report of successful two-side closure of a coloduodenal fistula, caused by a dislocated pancreatic duct plastic prosthesis. In June 2013, a patient underwent placement of a 7-Fr prosthesis (Mandel & Rupp Medizintechnik, Erkrath, Germany), 6 cm in length, because of a disconnected duct syndrome due to necrotizing acute pancreatitis. This procedure was followed by a pancreaticojejunostomy in July 2013. In December 2014, the patient developed abdominal pain with an increase in in-

Fig. 2 **a** Penetration of the prosthesis through the wall of the duodenum. **b** Protrusion into the colon.

flammatory parameters: C-reactive protein 55 mg/L, leukocytes 11,400/ μ L, amylase 61 U/L, lipase 223 U/L. Assessments with computed tomography and endoscopy (gastroscopy, colonoscopy) showed a dislocated prosthesis penetrating the wall of the duodenum and colon (**Fig. 1 a** and **Fig. 2 a, b**), which indicated that removal of the prosthesis had simply been overlooked.

First, we marked the fistula orifice in the transverse colon with a through-the-scope-clip to be able to identify it after removing the prosthesis (**Fig. 2 b**, **Fig. 3 b**). In a second step, we removed the prosthesis transorally with a polypectomy snare and closed the fistula of the duodenum with an 11 t OTSC (**Fig. 3 a**). In a last step, we closed the fistula of the colon with a 14 t OTSC (**Fig. 3 b**). The suction-and-anchor method was used. To

Fig. 3 Fistula closure on both sides: duodenum (a) and colon (b). The fistula orifice was marked with a through-the-scope clip before removal of the prosthesis (b).

prevent the risk of an air embolism, carbon dioxide insufflation was used.

After the procedure, the patient reported being symptom free. The corresponding

clips in the duodenum and colon are shown in **Fig. 1 b**. The clips were still in place after a follow-up period of 80 days, and the patient was still free of symptoms. The acute occurrence of pain, the constellation of inflammatory signs, and the endoscopic findings, including presence of the prosthesis and absence of signs of tissue fibrosis, indicated that the fistula was of recent origin.

In conclusion, two-side OTSC placement can be a safe and effective procedure in patients with enteroenteric fistulas. In our opinion, the following condition must be met before this alternative is used: the fistula must be of recent development, which means that the fistula is not yet established. This is necessary to prevent the perforation of a hollow organ after extraction of the foreign body.

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